GEOGRAPHIC NEWS BULLETINS

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated under the Federal law as a non-commercial institution for the increase of geographic knowledge and its popular diffusion.)

General Headquarters, Washington, D. C.

Contents for Week of March 19, 1928. Vol. VII. No. 4.

1. Civilization Penetrates "The Sudan."
2. Potash: Another Staff of Life.
3. Nagasaki: The Growing "London" of Japan.
4. Southampton: A City Made Famous by a Harbor.
5. Australia's Amazing Types of Animal Life.

Photograph by F. Birtles

WHITE-ANT BEDS OF NORTHERN TERRITORY, AUSTRALIA

When a split propeller blade forced Sir Ross Smith, on his flight from London, to land in northern Australia, some of these large ant-hills provided the material for an improvised roadway to enable the Vimy to "take-off" after repairs had been made (see Bulletin No. 5).

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic News Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers for one year upon receipt of 25 cents (in stamps or money order). Entered as second-class matter, January 27, 1922, at the Post Office at Washington, D. C., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized February 9, 1922.

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Civilization Penetrates "The Sudan"

THE ANGLO-EGYPTIAN Sudan is developing rapidly, when it is considered that only a quarter of a century ago this region was a wilderness where roving tribes lived off the land much as did the Indians of North America, while to-day more than 50,000 acres are reported under irrigation and cultivation.

If one would call the Anglo-Egyptian Sudan merely "The Sudan," it is better to put that term in quotation marks, for geographically The Sudan applies to the great belt of Africa running across the continent, south of the Sahara. In fact the western part of the Sudan officially is the French Sudan, while the Civil Territory of the Niger and the Chad region are also included in the general area of the greater Sudan.

"Sudan" Means "The Land of the Blacks"

The word "Sudan" means "the land of the blacks." It is so called because the early explorers there first saw the aboriginal black men of Africa, though the most thickly populated Negroid belt is farther south, in the great Congo basin. But the area of development, mentioned above, is the Anglo-Egyptian Sudan, the region retained by the British Empire after the acknowledgment of a separate government in Egypt.

From a religious standpoint the country may be divided into two zones: the northern or civilized zone, in which practically the entire population is Mohammedan; and the southern or barbarous zone, which is predominantly pagan. The entire population is not far from 6,000,000, and nearly one-half the people are of primitive Negroid types living in the tropical southern belt.

The Land of "Fuzzy-Wuzzy"

A sort of Arab mixture inhabits the north, while in the east is Kipling's old friend the "Fuzzy-Wuzzy." On the whole, it is a thinly peopled land of amazing distances. One can go south from the Egyptian frontier 600 miles by rail before reaching Khartum. From there south one travels another thousand miles on a flat-bottomed, paddle-wheel Nile steamer before he reaches the southern boundary of the Anglo-Egyptian Sudan, which is almost on the edge of the great lakes and a third of the way to the Cape of Good Hope.

So mixed is the native population of the Nile banks in the Sudan that it has been aptly named the "Negro Potpourri," though some ethnologists contend that these blacks are not really negroes.

Probably the Nubians, geographically and physically, are the real link between Egypt and negro-land. Though Moslems for centuries, they have kept their own dialects.

The richness of the Nile Valley for century after century has lured so many invaders that to-day a veritable babel of races and tongues is found here. Apparently, the Moslem religion appeals strangely to the wild tribes of North Africa, and millions have adopted it. Many are carelessly called Arabs because they are Moslems, or because they can speak Arabic, or because they wear a picturesque make-up of town Arab and Bedouin garments.

"Invasion, however, is not the only disturbing element," a British military report says. "The natives of the Sudan, even when they have adopted a more

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COALING SHIP AT NAGASAKI, JAPAN (see Bulletin No. 3)

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Potash: Another Staff of Life

THOUGH potash deposits have been reported, during the past year, in Texas, in the Dead Sea, and at Solikamsk, Russia, Germany closes its annual trade report with a glowing record of activity in its potash trade. Potash long has been a major factor in Germany's commercial strength. The mineral might well be defined as Nature's own contribution to farmer aid.

Most of the world production of potash is used for fertilizer. With phosphates and nitrates it forms the bread and meat of plant life. Vegetables grown in potash-hungry land quickly perish. Potash applied to potash-hungry land sometimes doubles farm crops.

Flivver Takes Place of Dobbin

The earth's crust is filled with potash, but when the original supply is exhausted Nature is slow to renew the element.

When Dobbin and his stable mates pulled the plow and family buggy, stable manure supplied potash for the farm, but since stables have become garages, and tractors and flivvers now occupy the space used for stalls, the farmer has had to resort to artificial means of feeding his crops. In recent years many western farmers have forsaken cattle raising and have planted their ranches in grain, thus changing these areas from potash producers to potash consumers.

Potash used as fertilizer is called potassium chloride and potassium sulphate. In various other forms the commodity has many important uses. Milady's furs are dressed with potassium aluminum sulphate, and it may purify the water she drinks. The colored design on grandmother's calico dress was printed with the use of potassium bichromate, which is also extensively used by photographers, tanners and blue-print paper manufacturers.

Potash for Nerves, Firecrackers and Toothpaste

Every drugstore contains a jar of potassium bromide for medicinal use. Glass and soft soap manufacturers employ potassium carbonate, while potassium chlorate is essential in the manufactuure of "Fourth of July" firecrackers and rockets, photographers' flashlight powder, and some paints and toothpastes.

Gold is extracted from ore with potassium cyanide. Potassium hydroxide is extensively used in soap, disinfectant and grease making. The pink color of canned corned beef is caused by potassium nitrate, better known as saltpeter, which is a preservative and also is used in the manufacture of black blasting powder, shrapnel shells, fuses and smokeless powder charges.

Potassium acetate and potassium permanganate are bleachers and dyers. The latter also finds its way into medical preparations, is a strong disinfectant, and is used in the manufacture of saccharine. Potassium tartarate is the chief constituent of cream of tartar. Baking powder manufacturers use about 90 per cent of the supply. In the chemical laboratory, the uses of potash are legion.

The name "potash" was derived from the early method of producing the commodity. Wood ashes were placed in a pot and water poured over them from time to time. Then the mineral was extracted from the liquid. This method has even survived the mining of the large deposits of potash which were discovered in Germany in the middle of the last century, and which have since been the

UMI

or less settled life, are great travelers; traffic in human flesh and conquest for the sake of human flesh have nowhere been pursued so long and so thoroughly. The native changes his abode without hesitation.

"The real Arab appears to dominate the northern part of the Sudan, from Egypt to Kordofan, though he has nowhere exterminated the original inhabitants; he has in many cases not yet succeeded in forcing his own language on them, but he has intermarried freely with them, and the resulting mixture calls itself Arabian."

No Love for Egyptians

The Sudanese do not like the Egyptians; their only common tie is that both live on the waters of the Nile. The project of building the new Nile dams in the Sudan aroused much excitement in Egypt, where the fellaheen feared they might be robbed of some of their ancient irrigation rights.

Physically, the Sudan varies from the desert region of the north, where cultivation is confined to the narrow Nile Valley, through the central zone including productive soil and large areas of "rain lands," to the tropical zone of very fertile soil and heavy rains.

Egypt depends mainly on the Sudan for its meat supply, and thousands of acres of land have been put under pump irrigation to provide food crops for Egypt, whose people, as one investigator said, cannot subsist on bank notes and cotton. Slavery, once so common along the Upper Nile, has been largely put down, except, perhaps, in the remoter regions.

The Anglo-Egyptian Sudan, say the Egyptians, is an integral part of Egypt; but it was conquered, misgoverned, and lost by successive khedives, and for years and years it was exploited by Egypt for ivory, gold and slaves. Both socially and ethnologically, it differs from Egypt.

Bulletin No. 1, March 19, 1928.

© *Photograph from A. N. Mirzaoff*

TRANSSHIPPING COTTON AT ALEXANDRIA, EGYPT

Egyptian cotton has won an enviable reputation, but at great cost to the soil. The annual inundations do not now furnish enough fertilizer for the crop, and some fields are never inundated but get what water they need from irrigation canals. The English now are making efforts to raise cotton in the Anglo-Egyptian Sudan.

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Nagasaki: The Growing "London" of Japan

NAGASAKI rejoices over the news that Japanese trade in China has surpassed British trade.

Swiftly growing Nagasaki has more reason to rejoice than any other Japanese city. Japan, as geographies so often point out, is to Asia what the British Isles are to Europe, and Nagasaki is to the continent what London is to Europe. Ships from Nagasaki sail to Shanghai, Port Arthur, Tientsin, Foochow, Amoy and Canton as steamers from London serve Le Havre, Cherbourg, Antwerp, Rotterdam, Hamburg and Copenhagen.

Aviators Made Base Where Missionaries First Entered

When America's Round-the-World aviators left Japan they flew away from Kagoshma, the city where Christian missionaries first landed in Nippon nearly three centuries ago.

The arrival of the missionaries followed close upon the accidental discovery of Japan by Portuguese sailors who drifted too far eastward and landed on a small island south of Kyushu, which is the southernmost of the five central islands of the Japanese group.

These events later made Nagasaki, Kyushu city which the aviators used as a supply base, the only communication port with the outside world during the centuries that Japan preserved her hermitage. When all other nationalities were rigidly excluded from Nagasaki, the Dutch were allowed to remain, though they were under strict surveillance.

Coaling with a Human Chain

Nagasaki's dockyard is the oldest in Japan, and the most modern in equipment. Along a water front of a mile and a half ships come and go, electrically driven cranes busily load and unload, and only the coaling reminds one he is in a land of cheap labor and no labor unions. Above the clatter of machinery, the puffing of the engines, and the shrieks of whistles sound the shrill cries of men and women who pass baskets along an endless human chain from barge to steamer hold. The visitor is surprised to see women at manual labor, some with children strapped to their backs.

Nagasaki rises upon terrace after terrace to the quiet beauty of the mountains on which it is built. Her residential sections partake of the eternal calm and poise of the older Orient.

A City of Specialty Shops

The Orient is famed for bazaars—and there are extensive ones in Nagasaki. There are confectionery establishments, featuring sponge cake, fruit stores where loquats and oranges only are sold, umbrella shops, washing powder dealers, and a fish store wholly given over to dried fish roe.

Another surprise awaits visitors if they attend a Nagasaki theater. The orchestra seats are missing; the main floor is taken up with the sunken boxes which make it look like a cross-section of a honeycomb. But cutting through these boxes and running the entire length of the theater is a stage extension

world's most important source. Before the World War the Stassfurt and Alsace deposits gave the Kaiser virtual control of much of the world's agriculture.

A German chemist once remarked that "Germany can dictate which nations shall have food and which shall starve," basing his boast upon German monopoly of potash. After the war, however, Germany saw France take the Alsace deposits and felt the results of development in countries that had long depended upon German potash.

Italy Extracts Her Supply from Lava

Italy was driven to extracting potash from lava, and when the supply of European potash dwindled in this country, poor crops, traced directly to shortage of potash, forced the United States Government and individuals to develop our potash resources. Toward the end of 1918 about $50,000,000 had been invested in potash production. Machines were placed aboard flat boats to harvest seaweed from which potash was extracted, mines were opened in various parts of the country, and many tons were extracted from sugar-beet waste, wool washings, blast furnace dust, cement factory flue dust, and molasses distillery waste. From a production of 1,090 tons in 1915, our industry reached a point, in 1918, when 54,803 tons were placed on the market.

German and Alsatian potash is readily soluble, while American potash is usually so locked up with other minerals that cost of production has heretofore made it impossible to compete with the European industry. As a result, after the armistice, farmers of the United States looked again to Europe for some of their potash.

Bulletin No. 2, March 19, 1928.

© *Photograph by A. W. Cutler*

THE UNEQUAL YOKE OF THE EAST: AN EGYPTIAN FELLAH PLOWING WITH A CAMEL AND A BUFFALO

The forked stick of the days of the Pharaohs is still seen along the Nile, although the cotton boom stimulated the importation of more modern implements (see Bulletin No. 1).

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Southampton: A City Made Famous by a Harbor

WHEN a great American liner recently struck a sandbar off Southampton, England, the incident illustrated the need for deeper and deeper harbors to keep pace with the larger and larger vessels that are being built.

Within the past year Southampton, already one of the finest harbors in Europe, has planned an improvement by widening the channel of Southampton Water.

One reason why this city and harbor holds a high interest for America is that so many American passengers land there.

Southampton city might be properly called Southampton peninsula. With a population slightly less than Syracuse, New York, the city is spread over the whole area of a peninsula extending out into Southampton Water.

Tides Help Make Harbor Desirable

The excellence of its harbor is due to its protected location 12 miles up the Water from the restless English Channel, and to two tides, one from the North Sea, and another, two hours later, from the Atlantic Ocean. An ocean liner can make the channel as easily to-day as the 95-foot *Mayflower* slipped out of the harbor in 1620, before it put in at Plymouth and then crossed to America.

The huge docks, some of which are more than 18 acres in area, occupy the end of the peninsula and are equipped to accommodate the largest vessels afloat. But for the docks Southampton would not be one of England's largest railroad centers, for it is not an industrial city. Much of the trade with the continent clears through this port, and many of England's visitors enter and leave Southampton. Many vessels destined to northern European ports make Southampton a port of call.

High Street Is Main Thoroughfare

High Street, Southampton's "Main Street," runs northward from the docks through the old section of the city. Modern hotels and other buildings, seldom more than four stories high, have taken the places of some of the ancient landmarks, but next to them one observes an old church surrounded by weather-beaten gravestones, or a quaint old house, bearing evidence of Southampton's bygone days.

Two blocks from the docks is the Church of the Holy Rood, with its spire which was built in the early thirteen hundreds, and, a short distance above, the Church of All Saints, completed in 1795.

Occupying many of the new and old structures alike, are the ever-present English "Pubs," as the Englishman calls the public ale houses.

Once Defended by Wall

At the head of High Street, Bar Gate, one of the six which pierced the high wall that defended Southampton in Saxon times, arches the thoroughfare. It is a huge stone structure of two stories. The second story is large enough to house a police court and a small museum. Three of the old gates and a large portion of the wall are still standing. At the foot, one sees here and there remains of the moat that once kept alien hordes from scaling the 30-foot barrier.

Passing through the gate one is in "new" Southampton. High Street

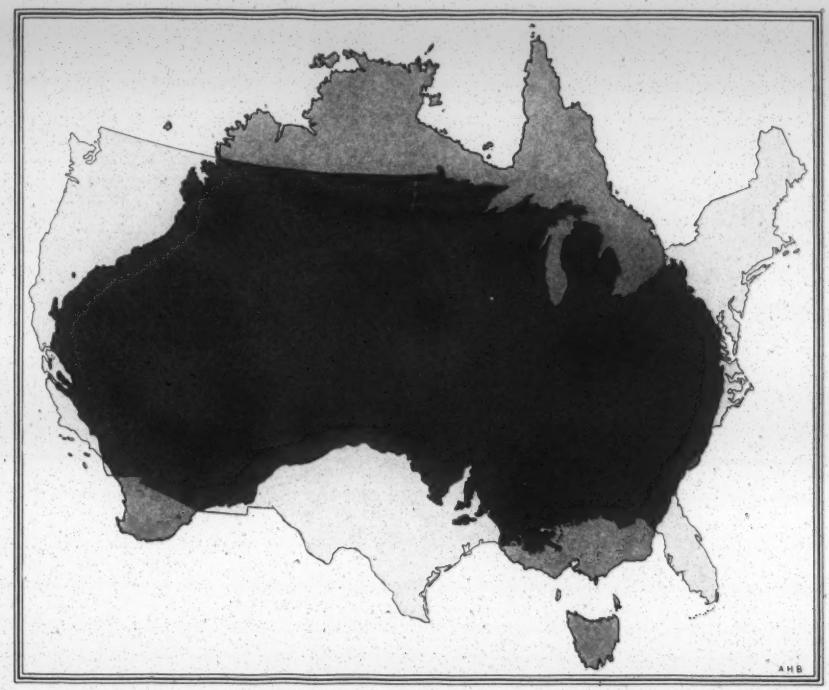
which, architecturally, is precisely like the "runway" affected by Broadway "revue" productions.

A Statue of General Grant in a Japanese Park

In Suwa Koen Park, famous for its camphor trees and pines, and its "New Year Day Cherry Trees," named for the time of their blooming, is a statue of General Grant, in memory of his visit there in 1879. Another statue memorializes Dr. Siebold, an Austrian who, only about fifty years earlier, brought to Japan the first inklings of western medical science. The city's best monument to him, however, is the extensive hospital he founded, which now has forty-eight buildings.

Amid steam hammers, boiler yards, shipbuilding and heavy hauling, Nagasaki preserves her quaint festivals. Curiously, the outstanding celebration, just concluded, is an aerial event—a kite flying fete. Every spring, the children and many of their older folk throng the parks and streets and outlying hillsides, each grasping a kite string. These strings are coated with ground glass or emery powder, and the object is to cut your neighbor's kite string by rubbing your cord against his.

In July is the feast of lanterns, an occasion upon which ancestors are supposed to revisit their homes, so lights are hung at their graves to help them find the way. Since the hills, rising amphitheaterlike from the harbor, are strewn with graveyards, the city becomes a vast, illuminated bowl.



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OUTLINE MAP OF AUSTRALIA ON OUTLINE OF THE UNITED STATES, TO SHOW RELATIVE SIZES

If we except the lakes, the land area of the continental United States is 2,973,890 square miles, and of Australia 2,974,581 square miles, a difference in favor of Australia of 691 square miles.

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Australia's Amazing Types of Animal Life

WHEN Australia completes her ambitious project to link the north and south parts of her continent by rail, as described in the *Geographic News Bulletin* of March 12, 1928, travelers on that railroad will have an opportunity of seeing the animal curiosities of the inland region. For Australia is a veritable wonderland to the amateur naturalist.

The continent is rich in wild life of the most amazing types, chiefly marsupials, which, like its well-known kangaroos, carry their young in pouches on their stomachs.

The spread of farming and livestock production over Australia has thinned the ranks of the queer animals that once swarmed over the land, but representatives of almost every type can still be found either in the back country or living a precarious existence under man's heels.

A Fur-bearing, Egg-laying Creature

The queerest of Australia's queer animals, and one of the most astounding creatures in the world, is the duck-billed platypus, one of the most primitive mammals known to science. This creature is covered with fur like a beaver, has webbed feet and a flat bill like a duck, suckles its young, and lays eggs! Like the beaver, the platypus is so wary that it is seldom seen in a wild state. It burrows into stream banks from below the water line, then digs out apartments in the dry ground higher up. In these burrows it hatches its eggs.

The only other egg-laying mammal, the echidna, also lives in Australia. This little creature has quills like a porcupine and protects itself by rolling into a ball and exposing its bristly spikes. It digs with amazing rapidity and in soft ground seems to sink into the earth.

A Tree-Climbing Kangaroo

The kangaroo is the best known of Australia's characteristic animals. The first sight of one by a European occurred in June, 1770, when one of Captain Cook's sailors had a glimpse of a queer beast and described it as "an animal something less than a greyhound, of a mouse color, very slender made, and swift of foot." Where there were hundreds of thousands of these gracefully hopping creatures two centuries ago, there are only thousands now, for they were killed in large numbers by settlers, sportsmen and professional kangaroo-hunters.

One curious member of the kangaroo family is the tree-climbing kangaroo. It is a small animal, seldom seen by man. It is only in recent years that its existence became known to science. Although it sometimes runs about on the ground, it is much more at home among tree branches. These animals move from tree to tree at night and sleep in the daytime.

Marsupial "Cats" and "Bears"

There is at least a rough parallel among Australia's marsupials and many of the common animals of Europe and America. As a result the real names of the queer creatures have in many cases been forced out of use by American and European names that do not exactly apply. The Australian "flying squirrels" are phalangers—marsupials also. The wombat is called a "badger" be-

UMI

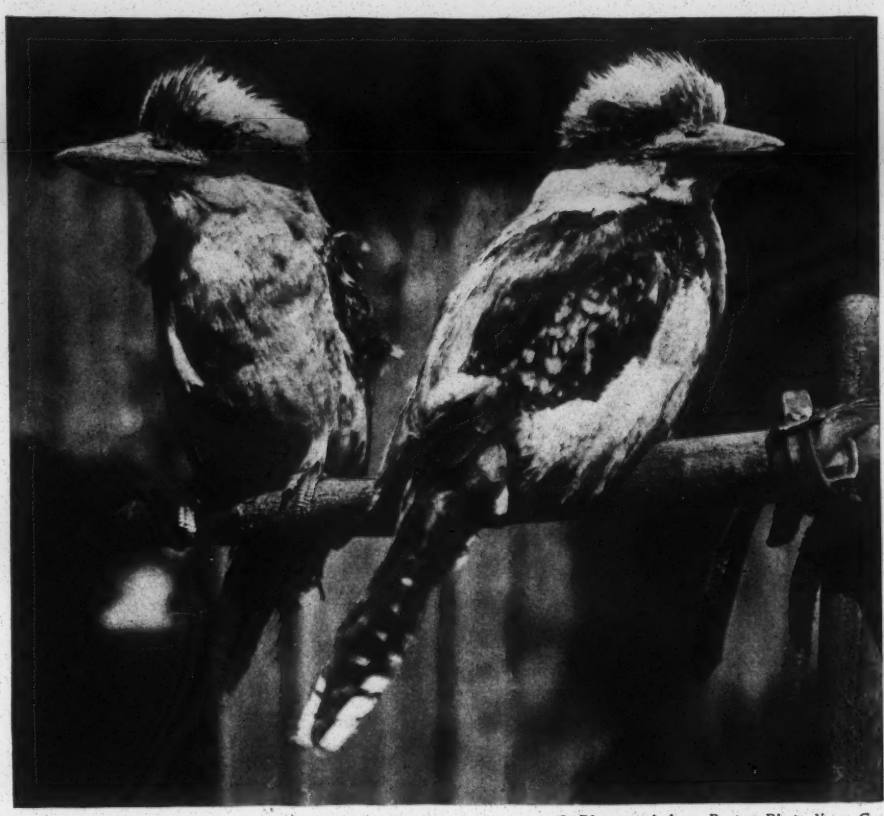
discards its name for Above Bar Street. In sharp contrast to the old closely built structures downtown, modern buildings and spacious parks flank the street.

One of the parks is Southampton Common, a public playground of 350 acres, except for a small portion occupied by a cemetery. The common is perhaps better known to the American "doughboy" as the American rest camp, or, in popular army parlance of pre-armistice days, the Restless Camp. It was then a canvas city where thousands of American soldiers who landed in England and Scotland were quartered to await transportation from Southampton docks to the French coast. Thus Southampton lived up to its reputation as chief embarkation port of the British Isles.

Winchester a Historic Treasure

Radiating from Southampton are hard sand and gravel roads, made picturesque by hedges lining both sides. Less than 15 miles north by road lies Winchester, at one time capital of the kingdom. It is now a city of fewer than 25,000 inhabitants, but is a treasure of British history.

Bulletin No. 4, March 19, 1928.



© *Photograph from Boston Photo News Co.*

THE LAUGHING "JACKASS"

A most surprising bird is the kookooburra, or laughing jackass. All at once in the quiet bush come loud peals of uproarious, mocking laughter. One is not inclined to join in the merriment—it all seems as foolish and weird as if an idiot boy were disturbing a congregation in church. When the source of the laughter is located, it turns out to be a silly-looking bird with clumsy, square body and open mouth sitting unconcernedly on a stump (see Bulletin No. 5).

cause his mode of life is similar to that of the latter animal. There are marsupial mice and rats, and, to complete the picture, a marsupial "cat" which preys upon them. These "cats," however, prefer to raid poultry pens.

One of the most attractive animals is the Koala, called "native bear." This animal, too, is a marsupial and in the adult state resembles a true bear only superficially. The little Koalas, however, look exactly like toy "teddy-bears." There is only one baby bear at a time, and after it graduates from the marsupial pouch, it is carried pick-a-back by its mother wherever she goes.

The "Devil" Stands Alone

The "tiger" is confined to Tasmania and owes his name to a striped back rather than to any other close resemblance to the great jungle cat of Asia. In reality the animal looks more like a wolf than a tiger, and has super-wolfish traits, being a notorious sheep-killer.

The "Tasmanian Devil" is one animal among the queer creatures of the Antipodes that seems to have a sufficiently characteristic appearance not to be given an animal name borrowed from foreign lands—at least earthly lands. He is an ugly, ferocious beast, and is even more notorious as a sheep and poultry killer than the "tiger." He gives a faint suggestion of jackal, wolf, and wild cat rolled into one. He has almost been exterminated, and probably will not last many years longer.

Bulletin No. 5, March 19, 1928.

© *Photograph by Norman Thomas*

AN AUSTRALIAN RABBIT TRAPPER

An Englishman, moving to Australia, desired to give his farm a homelike air, so he took along some rabbits. They began to spread like the English sparrow in America, and soon the fertile parts of the country were overrun. The rabbit march inland was that of a pitiless vandal army, for in the dry years, not content with nibbling the grass of the sheep and cattle stations to the point where it would not make good pasture, they ate it out by the very roots, barked all the trees, and left nothing but blank desolation behind them. Poison was tried, special machines being devised to sow poisoned grain in furrows where the rabbits would burrow for it, but the sheep and cattle would pass it over. But it came nearer to killing off all the birds than it did the rabbits and was abandoned. Now rabbit-proof fences and bounties hold the rabbit plague in check.